

**Laboratory 3: Simple Instructions****Problem 4:**

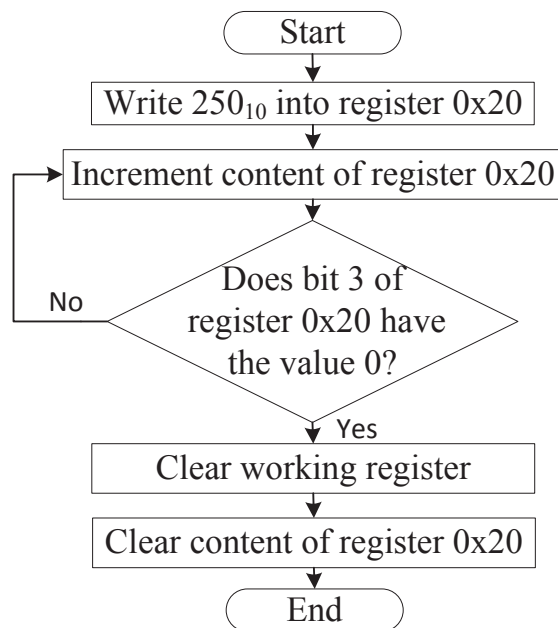
The following program is given

```

1  list p=16F84A;
2  include "p16f84A.inc";
3  org 0;
4  main;
5  movlw 05h;
6  movwf 0Dh;
7  movwf 0Fh;
8  loop;
9  rrf 0Fh,1;
10 decfsz 0Dh,1;
11 goto loop;
12 end;

```

- Determine a flow-diagram that represents the above program.
- Write and compile the program in MPLAB.
- Simulate the program step by step. Write down the content of the registers 0x0D and 0x0F.
- Consider the change of 0x0F at each iteration. How should you change the program such that the content of 0x0F at the end is the same as after line 7.
- Now consider the following flowchart. Write a program for the flow chart using the operations `incf` and `btfsf` and simulate it in MPLAB.



- Write the same program without using `btfsf`.